COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

OFFICE OF ALTERNATIVE DISPUTE RESOLUTION

In the Matter of Mike Facchini, Bridgestone Development, Inc.	OADR Docket No. WET-2022-025 MassDEP SE-File 126-0646 Carver, MA

PREFILED DIRECT TESTIMONY OF
GARY JAMES, P.E.

I, Gary James, P.E. being duly sworn, do say and testify as follows:

I. QUALIFICATIONS

1. My name is Gary D. James. I am a Senior Project Manager at the BETA Group, Inc. ("BETA"), an environmental and engineering consulting firm with seven offices in four states, including Massachusetts. I am a professional engineer registered in the Commonwealth of Massachusetts, with over 45 years of experience in site design, hydrology/hydraulics, septic systems, utilities, residential and commercial subdivisions, construction & demolition debris recycling facility design and layout, flood control structures, floodway analysis, coastal structures including piers, docks, marinas and shoreline protection, erosion control and stormwater design and analysis.

   A copy of my resume is attached hereto as **Exhibit 1**.

2. I received a bachelor's degree from Northeastern University in 1975, and I have been a registered professional Engineer since 1982, when I received my license from the State of Maine.

3. I am also a Massachusetts Certified Soil Evaluator and Certified System Inspector. I have performed hundreds of hydrologic and hydraulic designs of stormwater control measures in accordance with the Massachusetts Department of Environmental Protection Stormwater Management Standards since their inception in 1996.
4. I have analyzed hundreds of sites concerning matters before conservation commissions across the Commonwealth of Massachusetts, from Hadley to Truro, in matters involving the Massachusetts Wetlands Protection Act, M.G.L. c. 131, § 40 (the "Act" or the "WPA"), the Regulations thereunder at 310 CMR 10.00 *et seq.* (the "Regulations"), and local wetlands bylaws.
5. I joined the BETA Group, Inc. on August 1, 2021.
6. I am currently a Peer Review Engineer for the Planning Boards and/or Conservation Commissions in 5 communities across the Commonwealth. In that capacity, I review proposals brought forward by applicants for compliance with the local bylaws, the Massachusetts Stormwater Standards and the performance standards of the Massachusetts Wetlands Protection Act.

II. BACKGROUND

7. BETA and I were retained by the Petitioners in the above-captioned matter to review the Superseding Order of Conditions ("SOC") and provide expert testimony on whether the Department of Environmental Protection ("MassDEP") erred in issuing the SOC.

9. The SOC concerns the proposed construction of two commercial buildings, driveways, parking lots, closed drainage systems (catch basins with underground pipes) septic

systems and utility connections on Lot 3 (the "Project"). The Project is one of eight commercial development lots in the Ricketts Pond Business Park Subdivision ("RPBP Subdivision") on Spring Street in Carver.

10. I have reviewed the following relevant documents in this Matter:

a. Permit Plan Set, Site Development Plans, Lot 3 (APN 32-1-3) by MEG, dated March 21, 2022, Drawing No. G-1 ("Site Plan")

b. Applicants' March 7, 2022 Notice of Intent, SE 126-0646

c. March 21, 2022 "Drainage Calculations and Stormwater Management Report" with August 1, 2022 revision date, by MEG ("2022 Stormwater Report")

d. June 21, 2022 Carver Conservation Commission Order of Conditions, SE 126-0646

e. July 6, 2022 Request for Department Action

f. Superseding Order of Conditions issued by MassDEP dated November 14, 2022

g. Notice of Appeal in this Matter, dated November 23, 2022

h. The following online maps and satellite images dated 2001, 2005, 2008/2009, 2011/2012, 2013/2014, 2015, 2019, and 2021

i. Massachusetts Department of Environmental Protection Wetlands Regulations, 310 CMR 10.00, the Massachusetts Stormwater Handbook including the Stormwater Management Standards

j. October 27, 2023 Letter to Doreen Kearney, Interim Case Administrator, from Hinckley Allen on behalf of Applicant with attachments

k. February 3, 2022 Letter Report from Scott W. Horsley to Save the Pine Barrens, Inc. regarding "SLT Sand & Gravel Mining, Spring Street, Carver, MA

Description of the RPBP Subdivision Site and Lot 3

11. The Site Plan states that the Locus Owner is RPBP, LLC, 3 Marion Drive, Carver.

12. The SOC that is the subject of this Appeal is for Lot 3 within the RPBP Subdivision.

13. The 2022 Stormwater Report, page 1, states that the "project will consist of multiple commercial buildings located off Spring Street in Carver, Massachusetts at Lot 3 of the Rickets Pond Business Park Definitive Subdivision." It states the "existing and proposed conditions for the approved subdivision are illustrated" on subdivision plans dated January 10, 2019 and revised April 3, 2019 ("RPBP Subdivision Plans"). The Site Plans, note 14, refer to 2019 Subdivision Plans "for existing and proposed site conditions for the subdivision."

14. The cover sheet (Sheet G-1, entitled "***Legend, Abbreviations & General Notes"***) of the Site Development Plans for Lot 3 show the RPBP Subdivision layout with eight lots including Lot 3.

15. The watershed analyzed in the 2019 and 2022 Stormwater Report is "comprised of approximately 21.02 acres which includes the Carver portion of the subject parcel and offsite tributary areas to the northeast and southern portions" of the RPBP Subdivision. 2022 Stormwater Report, page 2. These offsite areas are Ricketts Pond and a small portion of the abutting lot along the northeast property line.

16. My review of recent aerial imagery shows that the land owned by Marob Trust ("Marob lot") which is located adjacent to Lots 4 and 5 of the RPBP Subdivision (Site Plan G-1) comprising about 5 acres, is being cleared and earth removed.

17. The RPBP Subdivision site is approximately 20 acres and was heavily wooded as of 2008. The topography shown in the Site Plan Permit Plan Set sheet EX-1, entitled ***Existing Conditions Plan"*** dated March 21, 2023 and revised 07/12/2023, shows a significant portion of the site grading and earth removal for the proposed subdivision roadway and associated development of the lots has already been accomplished.

18. The earth removal and associated change in topography from leveling the hill on the Marob lot from Elevation 205 at the crest to about elevation 140 (NAVD88) impacts the stormwater management and calculations.

2022 Stormwater Report for Lot 3

19. The 2022 Stormwater Report describes Lot 3's stormwater system as part of the RPBP Subdivision stormwater system. The 2022 Stormwater Report for Lot 3 states,

> "Stormwater from the proposed site development [Lot 3] will be directed to the proposed stormwater infiltration basin designed for the subdivision (Infiltration Basin #1 and Infiltration Basin #2). The entire 100-year storm runoff volume from the proposed commercial lot will be contained within the infiltration basins…A closed drainage system consisting of a series of catch basins and drainage manholes will direct stormwater runoff from Lot 3 to the infiltration basin (1P) that will accept runoff from the eastern portion subdivision project….A portion of the front yards of Lot 3 will continue to sheet flow to Rickets Pond Drive, where they will be captured by the closed drainage system for the roadway and be conveyed to Infiltration Basin 1P."

20. The 2022 Stormwater Report's stormwater calculations for Lot 3 are based on the 2022 Stormwater Report which was prepared for the entirety of the RPBP Subdivision (Site Plan G-3). There is no individual Lot 3 stormwater report. The design of the RPBP Subdivision included stormwater Best Management Practice (BMP) design for the lot development which included Lot 3. Therefore, to determine whether the proposed development of Lot 3 will comply with the Stormwater Management Standards, it is necessary to review the impact of the proposed development as it relates to that design.

21. The 2022 Stormwater Report for Lot 3 states it contains stormwater runoff calculations for post development conditions to confirm that Infiltration Basin #1 and Infiltration Basin #2 designed for the RPBP Subdivision can accommodate the runoff for the RPBP lots.

Lot 3 is Part of a Phased Project

22. It is my opinion, based on the description in the 2022 Stormwater Report, plans and the documents referenced above, that Lot 3 is part of a phased project for purposes of the Stormwater Standards and the Massachusetts Stormwater Handbook. 310 CMR 10.05(n) and the Handbook, Vol. 1, c. 1, p. 3 state,

> "For phased projects, the determination of whether the Stormwater Management Standards apply is made on the entire project as a whole including all phases. When proposing a development or redevelopment project subject to the Stormwater Management Standards, proponents shall consider environmentally sensitive site design that incorporates low impact development techniques in addition to stormwater best management practices."

23. These phases of development of the RPBP Subdivision, including Lot 3 and adjacent land is occurring simultaneously. Phase 1 included land clearing and sand and gravel mining operations, which have been ongoing from about 2009 to present within the RPBP Subdivision, and on adjacent land according to satellite images. Subsequently, Phase 2 is the construction of the roadway, buildings and site development within the RPPB Subdivision, including Lot 3. Phase 3 is the simultaneous expansion of the RPBP project onto land abutting the RPBP Subdivision, including to the southeast, starting in about 2021.

24. The 2022 Stormwater Report describes the phasing of the development of the lots within the RPBP which proceeded as the earth removal was conducted. It describes the "Definitive Subdivision Plans, Rickets Pond Business Park", dated January 10, 2019, revised April 3, 2019, with a stormwater report dated January 10, 2019. The MEG 2019 Stormwater Report was updated for the development of Lots 1, 2 and 3 in phases. There was a revision of the stormwater report for Lots 1 and 2, and then Lot 3, which is the March 21, 2022 Report (revised August 31, 2022 which is the subject of this Appeal.)

III. ISSUES TO BE ADJUDICATED

A. ISSUE NO. 1: "WHETHER THE PROPOSED PROJECT COMPLIES WITH THE STORMWATER MANAGEMENT STANDARDS PURSUANT TO 310 C.M.R. 10.05(6)(K) THROUGH (Q)."

25. No. Below I identify nine reasons why the Project does not comply with the Stormwater Management Standards of 310 C.M.R. 10.05(6)(k) through (q). Since the Stormwater System does not comply with the Standards, the Wetland Resource Areas and the interests of the Act are not adequately protected on Lot 3. The noncompliance jeopardizes the buffer zone on Lot 3 and Ricketts Pond on the eastern boundary of Lot 3.

REASON NO. 1:

26. The 2022 Stormwater Report overstates the stormwater runoff volumes and rates (Predevelopment Condition) and therefore the stormwater system is under designed and violates the Stormwater Standards. 310 CMR 10.05(k)(2) states, "Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates." Stormwater Standard 2, Peak Flow Rate Attenuation.

27. This is the primary issue associated with the Stormwater Calculations in the 2022 Stormwater Report: the calculations overstate the runoff volumes and rates associated with existing conditions which **reduces** the overall performance requirements for the design of the BMPs. As a result, the stormwater management system does not ensure that post development peak discharge rates do not exceed pre-development peak discharge rates. The difference in the volume of water between the two rates, post-development, and pre-development, is the volume of water that must be managed by a properly sized and designed stormwater system. Because the 2022 Stormwater Report overestimated the pre-development runoff the differential between

the pre-development and post development volume is smaller than what it is. This means the stormwater system was designed for less runoff, which violates the Stormwater Standards.

28. The method used in the 2022 Stormwater Report to obtain the predevelopment runoff rates establishes that the system is under designed. The data used in the 2022 Stormwater Report should have been based on stormwater runoff rates for a forested site but instead used runoff rates for a site with bare land. Runoff from a forested site happens more slowly over time and has less volume because of contact with the vegetation and a greater opportunity for rainfall to be absorbed in the ground. The 2022 Stormwater Report is based on a site that has no forest or vegetation. It uses the rates based on the conditions after the earth removal operation that removed the forest and vegetation and created a site with bare sand/earth. The bare land should not have been considered as the "existing conditions" for purposes of determining the pre-development stormwater runoff volumes and rates. Based upon aerial photographs from the MassMapper GIS Site, this was a forested site prior to the development of the Route 44 Extension in 2005 and remained almost completely wooded until 2008 as shown on the aerial imagery. See also NRCS Soils Map, Figure 3 to the 2022 Stormwater Report.

29. Using runoff volumes after the land clearing and earth removal, instead of using a forested condition, resulted in an erroneous calculation of the volume and rates of runoff in the Pre-Development Condition (Appendix A of the Stormwater Report). This means the stormwater system is under designed and does not comply with Stormwater Standard 2. The post-earth removal condition is not the Pre-Development permanent ground cover, but that is what the development of the existing conditions peak flow rates and volumes in the report are based upon. "Thus, the Curve Number" (CN) values used in the hydrologic analysis of the site should be representative of the forested conditions. The CN value is a key parameter used in hydrology to

estimate direct runoff or precipitation runoff (the volume of water that is not absorbed into the ground). The 2022 Stormwater Report used the wrong CN value. By using the higher CN value associated with the bare earth (post-earth removal) condition, the 2022 Stormwater Report reduced the design requirements for the proposed stormwater BMPs to meet Standard 2, Peak Flow Rate Attenuation. values used in the should be representative of the forested condition, but they are not.

30. The CN value is a dimensionless index that ranges from 0 to 100 and reflects the combined effect of the hydrologic soil group, land use, treatment, and hydrologic condition on runoff potential. The CN value indicates the potential of a given area to generate runoff. A lower CN value indicates a low runoff potential (more infiltration), while a higher CN value suggests a high runoff potential (less infiltration). Factors influencing the CN value include:

a. Soil Type: Soils are categorized into four hydrologic groups (A, B, C, D) based on their infiltration rate when thoroughly wet. Group A soils have a high infiltration rate (low runoff potential), while Group D soils have a low infiltration rate (high runoff potential).

b. Land Use and Cover: Vegetation, impervious surfaces, and land management practices significantly affect runoff. The method also considers hydrologic conditions, distinguishing between 'poor', 'fair', and 'good' conditions based on the level of cover and conservation practices in place. It is used to assess the impact of land use changes on water runoff and impacts the size and type of stormwater system to be used.

31. As shown in the 2022 Stormwater Report values developed for the existing conditions (pre-development/pre-earth removal) analysis for each of the four design points in the analysis. These design points are watershed areas where runoff is flowing off the site to a specified location.

Design Point	Weighted CN Value	Peak flow rates			
		2 year	10 year	25 year	100 year
DP-1 To Ricketts Pond	45	0.06	1.31	3.06	7.03
DP-2 Spring Street	31	0.00	0.00	0.03	0.13
DP-3 Route 44/West Property	30	0.00	0.00	0.02	0.11
DP-4 Northeast Property Line	30	0.00	0.00	0.00	0.01

32. The only location where a bare ground condition was analyzed was at DP-1. As can be seen, by utilizing a higher CN value associated with the gravel removal operation, it increased the weighted CN value by 50% in that single watershed. It is important to note that the combined watershed area of DP 2 and 3 is nearly equal to the watershed area to DP-1. As shown above, the peak flow rate to DP-1 is 28 times greater than the combined peak flow rates from DP-2 & 3. What is critical about this increase is that all the watershed area to DP-2 Spring Street and DP-3 Route 44 has been diverted to DP-1 in the proposed conditions. As can be seen, by changing the CN values, the design overstates the peak flow rates by 96% when compared to the equivalent totals for DP 2 and 3. In this case, the landowners stripped their property of vegetation in advance of the Stormwater Report and NOI filing, which reduces the stormwater BMP design requirements and effectively weakens the requirements of Standard 2 for the RPBP subdivision and Lot 3. In addition, the design of Basin 2 where Lot 3 discharges, the maximum water surface

elevation in the basin is El. 138.75. The emergency spillway crest is at Elevation 138.60. Thus, there is no additional storage volume in the basin as designed to attenuate the peak flow rates.

REASON NO. 2

33. The Project does not comply with Stormwater Standards requiring loss of annual recharge to be eliminated or minimized.

34. The Wetland Regulations, 310 CMR 10.05(k)(3) states,

> Loss of annual recharge to ground water shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices and good operation and maintenance. At a minimum, the annual recharge from the post- development site shall approximate the annual recharge from the pre-development conditions based on soil type.

35. The land use alterations on the RPPB Subdivision Site and Lot 3 will change the overall runoff pattern towards Ricketts Pond. In addition, on the adjacent Lot 32-4 (Marob Lot) the topography is being leveled by the same owner/operator of RPBP across about 6 acres from a high point at elevation 205 down to elevation 140± near Ricket's Pond. The 2022 Stormwater Report does not update the Stormwater calculations to include the impact of the development of this parcel or how the runoff from this portion of the project being developed as part of or an extension of the RPBP Subdivision site will be directed either towards the Pond or back towards the RPBP Subdivision stormwater system. This analysis should include the entire site, since there is sufficient frontage remaining on the RPBP Subdivision adjacent to Lot 32-4 to allow development of the parcel in accordance with the underlying zone.

36. The Regulations 310 CMR 10.05(n) and the Handbook, Vol. 1, c. 1, p. 3 state,

> For phased projects, the determination of whether the Stormwater Management Standards apply is made on the entire project as a whole including all phases. When proposing a development or redevelopment project subject to the Stormwater

> Management Standards, proponents shall consider environmentally sensitive site design that incorporates low impact development techniques in addition to stormwater best management practices.

37. This required the 2022 Stormwater Report, and the 2019 Stormwater Report that it is based upon, to consider this phase of the project that was begun under permit in 2021.

38. As shown on Drawing No. WS-2, "Post Development Watershed Plan", the runoff from the entire site RPBP development will be directed to infiltration basins adjacent to the wetlands at the southeast corner of Rickets Pond. Overall impervious surfaces will cover 54% of this watershed. This area will no longer contribute to groundwater flow towards the pond along the west shoreline. Instead, it will all be diverted to the southerly wetlands adjacent to the pond, which could potentially impact the resource areas along each of these shorelines adjacent to the pond. The existing conditions analysis of Design Point 1 should be broken into 2 separate design points, the pond, and the wetlands to the south. The second design point should be established at the inlet into the pond at wetland flag WF-B44.

39. The proper design of the stormwater system to eliminate or minimize loss of recharge in these areas is necessary to comply with stormwater standards. This would ensure that the groundwater flow towards the pond remains consistent with existing conditions and that the RPBP Subdivision, including Lot 3, does not divert the flow into one concentrated discharge point at the southeast end of Rickets Pond. MassMapper GIS data shows that there are two public water drinking water wells located west of the RBPB Subdivision. The groundwater flow direction is toward these public drinking water wells. The 2022 Stormwater Report contains no information about how the changes in surface water flow from the RPBP development being implemented as part of the development's stormwater management plan would impact

groundwater levels, flow directions, or primary recharge areas for these public drinking water wells and private wells in the area.

40. 310 CMR 10.05(k)(3) also provides that groundwater recharge should be maintained by methods "including environmentally sensitive site design [and] low impact development techniques." The System designed for this project, including Lot 3, does not use environmentally sensitive site design or low impact development techniques."

REASON NO. 3

41. Infiltration Basins 1 and 2 do not have emergency dewatering capabilities or wells. In accordance with Volume 2, Chapter 2, page 91 of the Stormwater Handbook, the two proposed Infiltration basins along the southerly edge of the RBPB Subdivision should each have emergency dewatering capabilities. This is not shown in the 2022 Stormwater Report and plans. Also, Infiltration Basin 1, nearest Ricketts' Pond, should have a minimum of three monitoring wells. Infiltration Basin 2 should have a minimum of two monitoring wells. These are not shown in the 2022 Stormwater Report.

REASON NO. 4

42. Infiltration Basin 1 fails to meet the minimum setback of fifty feet from Resource Areas**.** The Infiltration Basin 1, the basin nearest Ricketts' Pond, fails to meet the minimum setback of fifty feet from "Waters of the Commonwealth" as defined by 310 CMR 10.04. Waters of the Commonwealth as defined include wetlands. The Stormwater Management Standards, Volume 1, Chapter 1, page 8, mandates a fifty-foot set back from Waters of the Commonwealth. Based upon the 2022 Stormwater Report, Site Plan for Lot 3 and the RPBP Subdivision plans, the measured setback from Infiltration Basin 1 to the flagged limit of the wetlands is only 33± feet, not fifty feet.

REASON NO. 5

43. Specifically, the design of Catch Basin 17 (CB-17) on Lot 3 does not comply with the "Structural BMP Specifications for the Massachusetts Stormwater Handbook." This was determined through the review of Plan C-1. Based upon the grading proposed on Lot 3, it appears that the impervious surface area tributary to CB-17 will exceed 0.25 acres and is therefore in violation of the design standards for a deep sump catch basin-required by the Handbook Volume 2, Chapter 2, "Design Considerations: The contributing drainage area to any deep sump catch basin should not exceed ¼ acre of impervious cover." P. 4. Although not specific to the Lot 3 development, it appears that this condition, where the tributary watershed to a deep sump catch basin exceeds 0.25 acres, does occur in multiple places in the stormwater collection design throughout the RPBP Subdivision development.

REASON NO. 6

44. Improper design for roof area runoff. The 2022 Stormwater Report does not show connections from the roof area to the proposed stormwater collection system for the buildings on Lot 3, as shown on C-1 of the Site Plan set. If the roof areas are not going to be equipped with gutters and downspouts, then they must be included in the overall impervious surface runoff towards the catch basins. As previously noted, this must be less than 0.25 acres as shown in Volume 2, Chapter 2 of the Handbook.

REASON NO. 7

45. The removal calculations for Total Suspended Solids (TSS) are incorrect (Standard 4-Water Quality). 310 CMR 10.05(k)(4) states "Stormwater management systems shall be

designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).” It specifies that this standard is met when three criteria are established.

46. The TSS Removal calculations for the project are incorrectly measured and reported. The 2022 Stormwater Report shows a “TSS Calculation Worksheet” dated October 3, 2018**.** The Total TSS Removal is over reported as 85%. The reason this is incorrect is that the pretreatment rates for the infiltration structures cannot be included in the total, which is what the table does. Thus, the overall TSS removal rate for the treatment train on Lot 3 would only be 80%, which is the rate associated with the Infiltration Basin as shown on the Worksheet. Accordingly, the design meets the standard of 80%, however there is no higher level met, such as the 85% reported on the Worksheet. And, if there are issues with the pre-treatment being provided by the deep sump catch basins due to the area of impervious surface being routed through the catch basins, then the basins do not meet the pretreatment requirements, and there will be a lower level of treatment provided for the entirety of the development.

REASON NO. 8

47. The 2022 Stormwater Management Report uses the wrong 100 Year Storm rainfall event of 7 inches in 24 hours.

48. In accordance with the Wetlands Protection Act, the 100 Year Storm rainfall event should be 7.0 inches in 24 hours. 310 CMR 10.57(2)(a) . The Project Summary in the revised report indicates that the rainfall data has been updated to reflect the new NOAA Atlas 14 values in accordance with the draft changes reported by DEP. However, the HYDRO-CAD printout dated 05/31/2022 included in the report does not reflect this change. The report does not provide the calculations necessary to confirm the results reported.

REASON NO. 9

49. The stormwater measures and reports have not accounted for the entirety of the development areas, thereby segmenting the project.

50. The proposed grades at the northeast property line of the RPBP Subdivision are 50+ feet lower than the existing grades on the abutting parcel. In addition, the proposed grades at the rear of Proposed Building No. 1 on the watershed map indicates that the entirety of this abutting parcel will be mined down to elevation 146-149 from 50 feet. The proposed grades indicate that this activity was planned in conjunction with the proposed subdivision. However, in violation of the standards, this portion of the development was not included in either the existing or proposed conditions analysis. Grading necessary to achieve these elevations will result in the disturbance of an additional 4.5-5.0 acres. By disregarding this element of the development, the design violates the requirements of the Standards to account for the entirety of the development in the application of the Standards to ensure that the full impacts of the development are included in the design.

B. ISSUE NO. 2: WHETHER THE PROPOSED PROJECT COMPLIES WITH THE STANDARDS CONCERNING PROJECTS WITHIN THE BUFFER ZONE TO A JURISDICTIONAL WETLAND PURSUANT TO 310 C.M.R. 10.02(2)(B).

51. No. The proposed project does not comply with the Stormwater Management Standards and there are no separate standards for buffer zones.

52. In accordance with Volume 1, Chapter 1, page 2 of the Handbook,

> Except as expressly provided herein, stormwater runoff from all industrial, commercial, institutional, office, residential and transportation projects including site preparation, construction and redevelopment, and all point source stormwater discharges from said projects shall be managed according to the Stormwater Management Standards.

Accordingly, the entirety of the development regardless of its location relative to the resource area is subject to the standards. In addition, for phased projects, Volume 1, Chapter 1, page 3 states that.

> For phased projects, the determination of whether the Stormwater Management Standards apply is made on the entire project as a whole including all phases.

53. Thus, the entire development including all phases is subject to the Stormwater Management Standards. In addition, there are no provisions in the Handbook which indicate that the design is subject to lesser standards based upon its position relative to the resource. Nor is there any provision in the Standards to ease the design standards based upon that position.

IV. CONCLUSION

54. Based on my professional experience, education, and following my review of supporting documents, it is my opinion the Department erred in issuing the Superseding Order of Conditions because the Project does not comply with the Stormwater Standards. The most serious error is the erroneous calculation of the runoff volume and velocity based upon the temporary use of the parcel in conjunction with the gravel removal. The 2022 Stormwater Report calculations use an erroneous number for the pre-development runoff volume. This resulted in a stormwater system that is under designed and will not attenuate peak flow rates to ensure that the pre-development and post development runoff from the Project remain the same. 310 CMR 10.05(k)(2). In addition, the basin as designed has no further capacity to handle any additional runoff volume. The 2022 Stormwater Report used the wrong CN value. By using the higher CN value associated with the bare earth (post-earth removal) condition, the 2022 Stormwater Report reduced the design requirements for the proposed stormwater BMPs to meet Standard 2, Peak Flow Rate

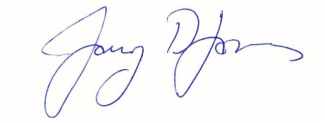
Attenuation. The use of an erroneous CN value means the design overstates the predevelopment peak flow rates by 96% when compared to the equivalent totals for DP 2 and 3. This is a violation of Standard 2 of the Stormwater Standards and poses a risk of altering the vegetation in both the Buffer Zone and the Resource Areas.

55. The stormwater system is also improperly designed because it will alter the recharge pattern to the groundwater across the RPBP Subdivision site. This could alter the Resource Areas on Lot 3, including the wetlands along Rickets Pond and Rickets Pond itself.

56. There are major flaws in the design and structural siting of the two infiltration basins. First, neither Basin has any emergency dewatering capability or monitoring wells as required by the Stormwater Standards. This poses a serious risk to the down gradient Resource Areas if an emergency develops. Second, Infiltration Basin 2 fails to meet the minimum setback of 50 feet from Resource Area. Third, the Design of Catch Basin 17 which is directly impacted by the development of Lot 3, does not comply with the Design Requirements for Structural BMPs thus the design does not provide the pretreatment to Basin 2 needed to allow the basin to achieve the 80% TSS Removal rate allowed by the standards. Fourth, the Lot 3 plans do not provide the data necessary to confirm that the roof area runoff will be treated in accordance with the requirements of the standards. Fifth, the Report uses the wrong 100 Year Storm rainfall event of 7 inches in 24 hours and the design of Basin 2 does not allow any further modification to provide additional storage volume.

57. In summary, the SOC does not protect the interests of the Act as it conflicts with the MassDEP wetland regulations and contravenes stormwater requirements. As such, the SOC should be vacated and the project redesigned.

Signed under the pains and penalties of perjury this 26th day of February 2024.



Gary James, P.E.